

ABSTRACT OF THE DISCLOSURE

This disclosure is of 1) the utilization of the spectrum from 250 nm to 1150 nm for measurement or prediction of one or more parameters, e.g., brix, firmness, acidity, density, pH, color and external and internal defects and disorders including, for example, surface and subsurface bruises, scarring, sun scald, punctures, in N-H, C-H and O-H samples including fruit; 2) an apparatus and method of detecting emitted light from samples exposed to the above spectrum in at least one spectrum range and, in the preferred embodiment, in at least two spectrum ranges of 250 to 499nm and 500nm to 1150nm; 3) the use of the chlorophyll band, peaking at 680nm, in combination with the spectrum from 700nm and above to predict one or more of the above parameters; 4) the use of the visible pigment region, including xanthophyll, from approximately 250nm to 499nm and anthocyanin from approximately 500 to 550nm, in combination with the chlorophyll band and the spectrum from 700nm and above to predict the all of the above parameters.